

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) In a graphical modeling and execution environment, a method comprising:

~~providing displaying a model view and an execution list view of a model being executed, the model view graphically depicting a plurality of components of the model;~~

~~displaying an the execution list view displaying depicting a listing of a dynamically updated execution list depicting an execution order of a plurality of methods called during an execution of a time step of the model, the dynamically updated execution list changing during the execution of the model to list methods that have been called during the time step until a specified point in execution of the time step, the model view interfaced with a debugger, the execution list view being updated during a simulation of the model; and~~

~~indicating visually on the model view a state of at least one method depicted in the dynamically-updated execution list view on the model view at the specified point in the time step.~~

2. (Previously Presented) The method of claim 1, further comprising:

displaying a visual indicator indicating an association between an executing block method and a calling block on the model view.

3. (Previously Presented) The method of claim 1, further comprising:

displaying a visual indicator indicating an association between a currently executing system method and a subsystem block owner of the currently executing system method on the model view.

4. (Previously Presented) The method of claim 1, further comprising:

creating a visual representation of a model component not previously displayed in the model view, the model component calling a method; and

displaying a visual indicator indicating an association between the visual representation of the model component not previously displayed and the method called by the model component.

5. (Previously Presented) The method of claim 1, further comprising:

extending a visual indicator from an originating point to a first called method depicted in the model view; and

extending sequentially the visual indicator to at least one subsequently called method depicted in the model view during a time step in the execution.

6. (Previously Presented) The method of claim 5, further comprising:

indicating a type of method executing in the model view.

7. (Currently Amended) The method of claim 6 wherein the indication indicating includes providing provides is a visual indication of the type of method executing in the model view.

8. (Currently Amended) The method of claim 7 wherein the visual indication is made by at least one of ~~one~~ ~~of~~ altering the color of a portion of a model component in the model view representing the method or inserting a geometric design in a model component displayed in the model view.

9. (Currently Amended) The method of claim 1 wherein at least one ~~user~~ ~~sets~~ visible breakpoint [[s]] is set in the model view.

10. (Previously Presented) The method of claim 9 wherein the breakpoints are conditional breakpoints.

11. (Previously Presented) The method of claim 1, further comprising:

arranging the execution list view to show the methods executed in a current time step in the execution of the model in a tree structure.

12. (Currently Amended) The method of claim 1 wherein ~~a~~ ~~user~~ ~~sets~~ at least one visible breakpoint [[s]] is set in the execution list view.

13. (Previously Presented) The method of claim 12 wherein the breakpoints are conditional breakpoints.

14. (Currently Amended) The method of claim 1, further comprising:

setting at least one of a trace point ~~and/or~~ a display point in at least one of the model view ~~and/or~~ the execution list view.

15. (Previously Presented) The method of claim 1, further comprising:

generating at least one of debugging data and profiling data during the execution of the model;

associating the at least one of debugging data and profiling data with at least one of the components of the model; and

visually indicating the associated data in the model view.

16. (Previously Presented) The method of claim 15 wherein the associated data includes solver data.

17. (Currently Amended) The method of claim 1, wherein the model view is interfaced with a debugger and further comprising:

generating debugging data with the debugger during the execution of the model;

associating the debugging data with at least one component of the plurality of components of the model; and

visually indicating the associated data in the execution list view.

18. (Previously Presented) The method of claim 17, further comprising:

indicating visually in the execution list view a number of iterations of at least one component in the plurality of model components during a time step in the execution.

19. (Currently Amended) The method of claim 1, further comprising:

receiving selecting a user-set-speed parameter via a control associated with the model view; and

executing the model in the model view based on the selected-speed parameter.

20. (Currently Amended) The method of claim 1, further comprising:

selecting-receiving a ~~user~~-set-speed parameter via a control associated with the execution list view; and

executing the model in the execution list view based on the ~~selected~~-speed parameter.

21. (Currently Amended) The method of claim 1, further comprising:

receiving input from an ~~user~~-controlled input device in the graphical modeling and execution environment, the input being interpreted by the graphical modeling and execution environment as a ~~user~~-selected-speed parameter; and

executing the model in the execution list view based on the ~~selected~~-speed parameter.

22. (Currently Amended) The method of claim 1, further comprising:

altering at least one of a model component or a connection between the model components[[s]]; and

adjusting at least one of the execution list view and the model view to indicate the effects of the altering.

23. (Previously Presented) The method of claim 22 wherein the altering step includes at least one of adding or removing of at least one of model components and a connection between the model components.

24. (Previously Presented) The method of claim 1, further comprising:

displaying elements of a compiled state of the model in the model view.

25. (Currently Amended) The method of claim 1, further comprising:

displaying debug information in the model view as a tool tip over a component of the model in response to ~~user~~-input.

26. (Previously Presented) The method of claim 25 wherein the displayed debug information indicates a signal value of a signal line in the model view.

27. (Previously Presented) The method of claim 25 wherein the displayed debug information is made persistent in the model view.

28. (Previously Presented) The method of claim 27 wherein the displayed debug information is updated in response to the execution of the model.

29. (Previously Presented) The method of claim 1, further comprising:

displaying debug information in the execution list view as a tool tip in response to a movement of a pointing device in the execution list view over a component of the model associated with the debug information.

30. (Previously Presented) The method of claim 29 wherein the displayed information is made persistent in the execution list view.

31. (Previously Presented) The method of claim 30 wherein the displayed information is updated in response to the execution of the model.

32. (Previously Presented) The method of claim 1, further comprising:

filtering the displayed execution list of methods in the execution list view so that only methods satisfying a user-specified criteria are displayed.

33. (Previously Presented) The method of claim 1, further comprising:

creating a record for a unique method invocation; and  
displaying data associated with the unique method invocation as the unique method invocation is called.

34. (Previously Presented) The method of claim 33, further comprising

anchoring the record to a block owner of the unique method invocation in the model view.

35. (Currently Amended) The method of claim 33, further comprising:

displaying a calling of the unique method invocation with varying degrees of intensity  
representative of the a frequency of the invocation.

36. (Previously Presented) The method of claim 33, further comprising:

creating a unique method invocation for an execution exception event.

37. (Currently Amended) The method of claim 1 wherein ~~a user sets non-visible breakpoints are set in~~ at least one of the model view or the execution list view.

38. (Currently Amended) The method of claim 1 wherein at least one of a set of debugging data or a set of profiling data ~~are is~~ displayed to a user in a separate view.

39. (Currently Amended) ~~A One or more computer-readable media medium holding computer-executable instructions for performing debugging in a graphical modeling and execution environment on an electronic device, the medium media comprising one or more instructions for:~~

~~instructions for providing displaying a model view and an execution list view of a model being executed, the model view graphically depicting a plurality of components of the model; the execution list view displaying a dynamically updated execution list depicting an execution order of a plurality of methods called during an execution of a time step of the model, the dynamically updated execution list changing during the execution of the model to list methods that have been called during the time step until a specified point in execution of the time step, the model view interfaced with a debugger;~~

~~instructions for displaying an execution list view depicting a listing of a plurality of methods called during an execution of a time step of the model until a specified point in execution of the time step, the execution list view being updated during a simulation of the model; and~~

~~instructions for indicating visually on the model view a state of at least one method depicted in the dynamically updated execution list view on the model view at the specified point in the time step.~~

40. (Currently Amended) The ~~medium media~~ of claim 39, wherein the ~~medium media~~ further comprises one or more instructions for:

~~instructions for displaying a visual indicator indicating an association between an executing block method and a calling block on the model view.~~

41. (Currently Amended) The ~~medium~~media of claim 39, wherein the ~~medium~~media further comprises one or more instructions for:

~~instructions for~~ displaying a visual indicator indicating an association between a currently executing system method and a subsystem block owner of the currently executing system method on the model view.

42. (Currently Amended) The ~~medium~~media of claim 39, wherein the ~~medium~~media further comprises one or more instructions for:

~~instructions for~~ extending a visual indicator from an originating point to a first called method depicted in the model view; and

~~instructions for~~ extending sequentially the visual indicator to at least one subsequently called method depicted in the model view during a time step in the execution.

43. (Currently Amended) The ~~medium~~media of claim 42, wherein the visual indicator is extended to a virtual subsystem depicted in the model view.

44. (Currently Amended) The ~~medium~~media of claim 42, wherein the ~~medium~~media further comprises one or more instructions for:

instructions for indicating a type of method executing in the model view.

45. (Currently Amended) The ~~medium~~media of claim 44 wherein indicating includes providing the indication is a visual indication of the type of method executing in the model view.

46. (Currently Amended) The ~~medium~~media of claim 45 wherein the visual indication is made by at least one one of altering the color of a portion of a model component in the model view representing the method or inserting a geometric design in a model component displayed in the model view.

47. (Currently Amended) The ~~medium~~media of claim 39 wherein a user sets at least one visible breakpoint[[s]] is set in the model view.

48. (Currently Amended) The ~~medium media~~ of claim 47 wherein the breakpoints are conditional breakpoints.

49. (Currently Amended) The ~~medium media~~ of claim 39, wherein the ~~medium media~~ further comprises one or more instructions for:

~~instructions for~~ arranging the execution list view to show the methods executed in a current time step in the execution of the model in a tree structure.

50. (Currently Amended) The ~~medium media~~ of claim 39 wherein ~~a user sets~~ at least one visible breakpoint[[s]] is set in the execution list view.

51. (Currently Amended) The ~~medium media~~ of claim 50 wherein the breakpoints are conditional breakpoints.

52. (Currently Amended) The ~~medium media~~ of claim 39, wherein the ~~medium media~~ further comprises one or more instructions for:

~~instructions for~~ setting at least one of a trace point and a display point in at least one of the model view and the execution list view.

53. (Currently Amended) The ~~medium media~~ of claim 39, wherein the ~~medium media~~ further comprises one or more instructions for:

~~instructions for~~ generating at least one of debugging data or profiling data ~~with the debugger~~ during the execution of the model;

~~instructions for~~ associating at least one of the debugging data or profiling data with at least one of the components of the model; and

~~instructions for~~ visually indicating the associated data ~~to a user~~ in the model view.

54. (Currently Amended) The ~~medium media~~ of claim 53 wherein the associated data includes solver data.

55. (Currently Amended) The ~~medium media~~ of claim 39, wherein the medium further comprises one or more instructions for:

instructions for generating debugging data with the debugger during the execution of the model;

instructions for associating the debugging data with at least one component of the plurality of components of the model; and

instructions for visually indicating the associated data to a user in the execution list view.

56. (Currently Amended) The ~~medium media~~ of claim 55, wherein the ~~medium media~~ further comprises one or more instructions for:

instructions for indicating visually in the execution list view a number of iterations of at least one component of the plurality of model components during a time step in the execution.

57. (Currently Amended) The ~~medium media~~ of claim 39, wherein the ~~medium media~~ further comprises one or more instructions for:

instructions for receiving selecting a user-set speed parameter via a control associated with the model view; and

instructions for executing the model in the model view based on the selected speed parameter.

58. (Currently Amended) The ~~medium media~~ of claim 39, wherein the ~~medium media~~ further comprises one or more instructions for:

instructions for selecting receiving a user-set speed parameter via a control associated with the execution list view; and

instructions for executing the model in the execution list view based on the selected speed parameter.

59. (Currently Amended) The ~~medium media~~ of claim 39, wherein the ~~medium media~~ further comprises one or more instructions for:

instructions for receiving input from an user-controlled input device in the graphical modeling and execution environment, the input being interpreted by the graphical modeling and execution environment as a user-selected speed parameter; and

instructions for executing the model in the execution list view based on the selected speed parameter.

60. (Currently Amended) The ~~medium~~media of claim 39, wherein the ~~medium~~media further comprises one or more instructions for:

~~instructions for~~ altering at least one of the model components or a connection between the model components; and

~~instructions for~~ adjusting at least one of the execution list view or the model view to indicate the effects of the altering.

61. (Currently Amended) The ~~medium~~media of claim 60, wherein the altering step includes at least one of ~~the~~ adding ~~and~~ or removing of at least one of model components or a connection between the model components.

62. (Currently Amended) The ~~medium~~media of claim 39 wherein the ~~medium~~media further comprises one or more instructions for:

~~instructions for~~ displaying elements of the compiled state of the model in the model view.

63. (Currently Amended) The ~~medium~~media of claim 39, wherein the ~~medium~~media further comprises one or more instructions for:

~~instructions for~~ displaying debug information ~~from the debugger to a user~~ in the model view as a tool tip over a component of the model in response to ~~user~~-input.

64. (Currently Amended) The ~~medium~~media of claim 63 wherein the displayed debug information indicates a signal value of a signal line in the model view.

65. (Currently Amended) The ~~medium~~media of claim 63 wherein the displayed debug information is made persistent in the model view.

66. (Currently Amended) The ~~medium~~media of claim 65 wherein the displayed debug information is updated in response to the execution of the model.

67. (Currently Amended) The ~~medium~~media of claim 39, wherein the ~~medium~~media further comprises one or more instructions for:

~~instructions for displaying debug information from the debugger to a user in the execution list view as a tool tip in response to a movement of a pointing device in the execution list view over a component of the model associated with the debug information.~~

68. (Currently Amended) The ~~medium~~media of claim 67 wherein the displayed information is made persistent in the execution list view.

69. (Currently Amended) The ~~medium~~media of claim 68 wherein the displayed information is updated in response to the execution of the model.

70. (Currently Amended) The ~~medium~~media of claim 39, wherein the ~~medium~~media further comprises one or more instructions for:

~~instructions for filtering the displayed execution list of methods in the execution list view so that only methods satisfying a user-specified criteria are displayed.~~

71. (Currently Amended) The ~~medium~~media of claim 39, wherein the ~~medium~~media further comprises one or more instructions for:

~~instructions for creating a record for a unique method invocation; and~~

~~instructions for displaying data associated with one of the unique method invocations as the unique method invocation is called.~~

72. (Currently Amended) The ~~medium~~media of claim 71, wherein the ~~medium~~media further comprises one or more instructions for:

~~instructions for anchoring the record to a block owner of the unique method invocation in the model view.~~

73. (Currently Amended) The ~~medium~~media of claim 71, wherein the ~~medium~~media further comprises one or more instructions for:

~~instructions for displaying a calling of the unique method invocation with varying degrees of intensity representative of a frequency of the invocation.~~

74. (Currently Amended) The ~~medium~~media of claim 71, wherein the ~~medium~~media ~~further~~ comprises one or more instructions for:  
~~instructions for creating a unique method invocation is~~ for an execution exception event.

75. (Currently Amended) The ~~medium~~media of claim 39 ~~wherein a user sets~~ ~~further comprising~~ one or more instructions for:  
~~setting~~ non-visible breakpoints in at least one of the model view or the execution list view.

76. (Currently Amended) The ~~medium~~media of claim 39 wherein at least one of a set of debugging data or a set of profiling data are displayed ~~to a user~~ in a separate view.

77. (Currently Amended) A system ~~for performing debugging in an electronic device having a~~ graphical design environment, the system comprising:

~~a processor configured to storage for a debugger, the debugger~~ ~~gather[ing]~~ debug information from the simulation of a model in the graphical design environment; and  
~~a display device in communication with the electronic device, the display device~~ displaying:

~~a model view, the model view displaying~~ depicting a plurality of components of a model ~~and being interfaced with the debugger~~; and

~~an execution list view, the execution list view displaying~~ depicting a listing ~~dynamically updated execution list depicting an execution order~~ of a plurality of methods called during the execution of a time step of the model, ~~the dynamically updated execution list changing during the execution of the model to list methods that have been called during the time step until a specified point in execution of the time step, a state of at least one method depicted in~~ the execution list view being visually represented on the model view, ~~the execution list view being generated by the debugger~~.

78. (Currently Amended) The system of claim 77, further comprising ~~further~~:  
a visual indicator indicating a currently executing method on the model view.

79. (Currently Amended) The system of claim 78 wherein the visual indicator sequentially extends ~~the indicator~~ to denote the execution order a sequence of methods executing on the model view.

80. (Currently Amended) The system of claim 77 wherein ~~a user is able to set~~ at least one of breakpoints, conditional breakpoints, display points or trace points are set in ~~on~~ the model view.

81. (Currently Amended) The system of claim 77 wherein ~~a user is able to set~~ at least one of breakpoints, conditional breakpoints, display points or trace points ~~on~~ are set in the execution list view.

82. (Previously Presented) The system of claim 77 wherein a visual indicator is used to indicate a type of executing method displayed in the model view.

83. (Previously Presented) The system of claim 82 wherein the visual indicator is one of color or a geometric pattern.